### 3.3.6.2 Oak Opening

#### 3.3.6.2.1 Community Overview

As defined by Curtis, this is an oak-dominated savanna community in which there is less than 50% tree canopy coverage. Historically, oak openings were very abundant and occurred on wet-mesic to dry sites. Today, very few examples of this type exist. The few extant remnants are mostly on drier sites, with the mesic and wet-mesic oak openings almost totally destroyed by conversion to agricultural or residential uses, and by the encroachment of other woody plants due to fire suppression. Bur, white, and black oaks are dominant in mature stands, typically as large, open-grown trees with distinctive limb architecture. Shagbark hickory is sometimes present. American hazelnut is a common understory shrub. The herb layer is similar to those found in oak forests and prairies, with many of the same grasses and forbs present. There are some plants and animals that reach their optimal abundance in the openings (e.g., red-headed woodpecker, orchard oriole, eastern bluebird, kittentails).

#### 3.3.6.2.2 Vertebrate Species of Greatest Conservation Need Associated with Oak Opening

Twenty-five vertebrate Species of Greatest Conservation Need were identified as moderately or significantly associated with oak opening (Table 3-136).

**Table 3-136. Vertebrate Species of Greatest Conservation Need that are (or historically were) moderately or significantly associated with oak opening communities.**

| ***Species Significantly Associated with Oak Opening*** |
|---|
| **Birds** |
| Red-headed Woodpecker |
| Brown Thrasher |
| Field Sparrow |
| **Herptiles** |
| Blanding's Turtle |
| Ornate Box Turtle |
| Northern Prairie Skink |
| Prairie Racerunner |
| Prairie Ringneck Snake |
| Bullsnake |
| Timber Rattlesnake |
| **Mammals** |
| Franklin's Ground Squirrel |
| Woodland Vole |
| ***Species Moderately Associated with Oak Opening*** |
| **Birds** |
| Greater Prairie-chicken |
| Northern Bobwhite |
| Barn Owl |
| Blue-winged Warbler |
| Vesper Sparrow |
| Henslow's Sparrow |
| Eastern Meadowlark |
| **Herptiles** |
| Wood Turtle |
| Western Slender Glass Lizard |
| Black Rat Snake |
| **Mammals** |
| Eastern Red Bat |
| White-tailed Jackrabbit |
| Prairie Vole |

In order to provide a framework for decision-makers to set priorities for conservation actions, the species identified in Table 3-136 were subject to further analysis. The additional analysis identified the best opportunities, by Ecological Landscape, for protection, restoration, and/or management of both oak opening and associated vertebrate Species of Greatest Conservation Need. The steps of this analysis were:

- Each species was examined relative to its probability of occurrence in each of the 16 Ecological Landscapes in Wisconsin. This information was then cross-referenced with the opportunity for protection, restoration, and/or management of oak opening in each of the Ecological Landscapes (Tables 3-137 and 3-138).

- Using the analysis described above, a species was further selected if it had both a significant association with oak opening and a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of oak opening. These species are shown in Figure 3-31.

**Table 3-137. Vertebrate Species of Greatest Conservation Need that are (or historically were) *significantly* associated with oak opening communities and their association with Ecological Landscapes that support oak opening.**

| Oak Opening | Birds (3)* | | | Herptiles (7) | | | | | | | Mammals (2) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type | Red-headed Woodpecker | Brown Thrasher | Field Sparrow | Blanding's Turtle | Ornate Box Turtle | Northern Prairie Skink | Prairie Racerunner | Prairie Ringneck Snake | Bullsnake | Timber Rattlesnake | Franklin's Ground Squirrel | Woodland Vole |
| **MAJOR** | | | | | | | | | | | | |
| Southeast Glacial Plains | H | H | H | H | H | | | | | | H | M |
| Southwest Savanna | H | H | H | H | H | | | H | M | M | M | M |
| Western Coulee and Ridges | H | H | H | H | H | H | H | H | H | H | M | M |
| **IMPORTANT** | | | | | | | | | | | | |
| Southern Lake Michigan Coastal | M | H | H | H | | | | | | | H | |
| Western Prairie | H | H | H | H | | H | H | | | H | M | |
| **PRESENT (MINOR)** | | | | | | | | | | | | |
| Central Sand Hills | H | H | H | H | H | | | | M | | H | |

Color Key

H = HIGH probability the species occurs in this Ecological Landscape

M = MODERATE probability the species occurs in this Ecological Landscape

= LOW or NO probability the species occurs in this Ecological Landscape

*** The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.**

**Table 3-138. Vertebrate Species of Greatest Conservation Need that are (or historically were) *moderately* associated with oak opening communities and their association with Ecological Landscapes that support oak opening.**

| Oak Opening | Birds (7)* | | | | | | | Herptiles (3) | | | Mammals (3) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type | Greater Prairie-Chicken | Northern Bobwhite | Barn Owl | Blue-winged Warbler | Vesper Sparrow | Henslow's Sparrow | Eastern Meadowlark | Wood Turtle | Western Slender Glass Lizard | Black Rat Snake | Eastern Red Bat | White-tailed Jackrabbit | Prairie Vole |
| **MAJOR** | | | | | | | | | | | | | |
| Southeast Glacial Plains | | M | | H | H | H | H | | | | M | | M |
| Southwest Savanna | | H | | M | H | H | H | | | | M | | M |
| Western Coulee and Ridges | | H | | H | H | H | H | H | H | H | M | | M |
| **IMPORTANT** | | | | | | | | | | | | | |
| Southern Lake Michigan Coastal | | | | M | H | H | H | | | | | | M |
| Western Prairie | | | | H | H | H | H | H | | | | M | M |
| **PRESENT (MINOR)** | | | | | | | | | | | | | |
| Central Sand Hills | | H | | H | H | H | H | | H | | M | | M |

Color Key

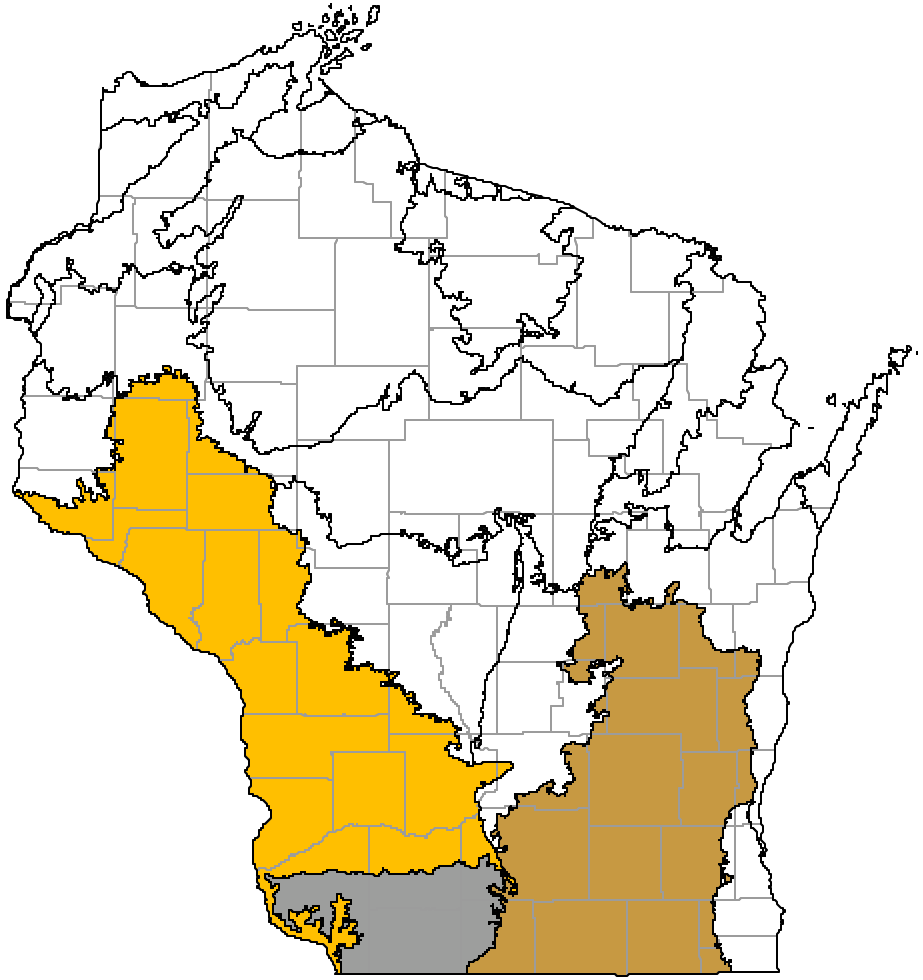
H = HIGH probability the species occurs in this Ecological

M = MODERATE probability the species occurs in this Ecological

= LOW or NO probability the species occurs in this Ecological

*** The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.**

**Figure 3-31. Vertebrate Species of Greatest Conservation Need that have *both* a significant association with oak opening *and* a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of oak opening.**



Southeast Glacial Plains
Red-headed Woodpecker
Brown Thrasher
Field Sparrow
Blanding's Turtle
Ornate Box Turtle
Franklin's Ground Squirrel

Southwest Savanna
Red-headed Woodpecker
Brown Thrasher
Field Sparrow
Blanding's Turtle
Ornate Box Turtle
Prairie Ringneck Snake

Western Coulees and Ridges
Red-headed Woodpecker
Brown Thrasher
Field Sparrow
Blanding's Turtle
Ornate Box Turtle
Northern Prairie Skink
Prairie Racerunner
Prairie Ringneck Snake
Bullsnake
Timber Rattlesnake

### 3.3.6.2.3 Threats and Priority Conservation Actions for Oak Opening

#### 3.3.6.2.3.1 Statewide Overview of Threats and Priority Conservation Actions for Oak Opening

The following list of threats and priority conservation actions were identified for oak opening in Wisconsin. The threats and priority conservation actions described below apply to all of the Ecological Landscapes in Section 3.3.6.2.3.2 unless otherwise indicated.

Threats and Issues

- The community type is globally rare.
- The few existing remnants are small, overgrown, and often isolated.
- Composition and structure are often not balanced on most remnants, either because they are overgrown, or lack understory and/or oak regeneration due to prolonged periods of past grazing.
- Lack of fire allows rapid succession to closed forest.
- Intense and/or frequent burning may have negative impacts on fire-sensitive invertebrates or other species (e.g., when habitat remnants are small, isolated, topographically uniform, and have very high fuel loads).
- Invasive plants such as exotic buckthorns, honeysuckles, and multiflora rose are serious threats.
- Grazing can eliminate understory plant species, limit oak regeneration, and encourage the spread of invasives.
- The native invasive, prickly ash, is a problem in grazed stands and can create impenetrable monotypic thickets.
- Rural housing causes fragmentation of restorable stands and may limit options for prescribed burning.
- Small patch size is a problem for some species; research is needed on the range of patch sizes that will sustain the full complement of associated animals.
- Gypsy moth may impact oaks in this community type.
- High deer densities can impact oak regeneration and understory composition.
- Unsustainable forest community management practices such as high grading or removing open-grown oaks as non premier lumber trees are detrimental to this community.
- Conflicts sometime exist with forest or grassland objectives. Effective resolution may be dependent on both site level and landscape level perspectives.
- There is a lack of specific information on the location and abundance of restorable sites in some Ecological Landscapes.
- More information is needed to manage the full range of natural variability associated with this dynamic community type.

Priority Conservation Actions

- Conservation will depend largely on restoration.
- Information is scarce because intact examples of the type are so rare they cannot be well-studied.
- Research is needed to develop additional restoration techniques. These techniques should be applied where appropriate.
- Conduct additional survey work in certain landscapes to identify restorable sites.
- This type requires active management, and, where possible, should be managed in the context of dry oak forest, oak woodland, and savanna in a gradient from closed forest to open grassland.
- Develop educational tools and demonstration areas that promote the benefits of prescribed fire, and address the public's fears and liability concerns.
- Follow existing screening guidance and management guidelines for prescribed burning to minimize negative impacts to sensitive species.

- Develop practical "toolkit" for regenerating oak in a savanna context and display in demonstration areas for public.
- Monitor to ensure oak regeneration success and appropriate herb response, and follow up with additional management as needed.
- Provide cost sharing incentives to burn and/or regenerate oak.
- Limited grazing can be used to manage the structure of this community to accommodate a variety of birds, using care not to eliminate palatable native plants.
- Reduce deer density.
- Continue and support research to find biocontrols for invasives; control spread of new invasives.
- Restoration potential for oak openings exists in the Central Sand Hills and Central Sand Plains Ecological Landscapes, but further evaluation is needed to determine feasibility and extent of the opportunities.

#### 3.3.6.2.3.2 Additional Considerations for Oak Opening by Ecological Landscape

Special considerations have been identified for those Ecological Landscapes where major or important opportunities for protection, restoration, and/or management of oak opening exist. Those considerations are described below and are in addition to the statewide threats and priority conservation actions for oak opening found in Section 3.3.6.2.3.1.

Additional Considerations for Oak Opening in Ecological Landscapes with ***Major*** Opportunities for Protection, Restoration, and/or Management of Oak Opening

*Southeast Glacial Plains*

The Southern Unit of the Kettle Moraine State Forest offers some of the best management and restoration opportunities in the upper Midwest, including Eagle Oak Opening (Waukesha County). Other good examples occur at Lulu Lake State Natural Area (Walworth County).

*Southwest Savanna*

More refined boundary information is needed. There are pastured savannas here that have never been plowed that have characteristic structural features, and may have retained at least some important understory components.

*Western Coulees and Ridges*

There are many overgrown sites and restoration opportunities are excellent in this Ecological Landscape. Some examples of this type are found at Avoca Prairie-Savanna (Iowa County), Red Cedar River Savanna State Natural Area and Caryville Savanna (Dunn County), and Lower Chippewa River State Natural Area (Buffalo, Dunn, Trempealeau Counties). Inventory projects that are designed to reveal priority restoration sites would likely yield positive results in this EL.

Additional Considerations for Oak Opening in Ecological Landscapes with ***Important*** Opportunities for Protection, Restoration, and/or Management of Oak Opening

*Southern Lake Michigan Coastal*

Several Milwaukee County Parks and a few other public lands (e.g., Chiwaukee Prairie State Natural Area in Kenosha County) have small-scale opportunities to manage for this community type.

*Western Prairie*

Some of the Waterfowl Production Areas and Wildlife Areas in this Ecological Landscape (e.g., Oak Ridge Lake Waterfowl Production Area in St. Croix County) offer restoration potential for this community type.